

REMARKS

Claims 1-14 are pending. By this Amendment, claims 1, 7, 8, 11 and 12 are amended and claims 13 and 14 are added. The attached Appendix includes a marked-up copy of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

The Office Action rejects claims 1-10 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specific language is identified in claims 1, 7 and 8, as forming the basis for rejection. In every case, it was a lack of antecedent basis, i.e., use of an article. Thus, the amendments do not affect the scope of the invention. The claims are amended in reply to the rejection. Specific language is not identified as forming the basis of the rejection of claims 2-6, 9 and 10. Applicant asserts that claims 2-6, 9 and 10 are allowable for their dependency on amended claim 1. Thus, Applicant respectfully requests the rejection of claims 1-10 under 35 U.S.C. §112, second paragraph, be withdrawn.

The Office Action rejects claims 1, 4-8 and 10-12 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,677,616 to Ooiwa. The rejection is respectfully traversed.

Applicant submits that Ooiwa does not disclose or suggest a vehicle AC generator comprising, ... a pair of C-shape positive and negative cooling fins having a common cutout section at a half side thereof thereby forming an accommodation space between the frame and the rear cover, the cooling fins being fixed to the frame to overlap each other in an axial direction ... a connector case disposed in the accommodation space radially outside the brush holder so as to form a cooling air passage connecting to the air intake window between an outer periphery of the brush holder and the connector case, the connector case having a terminal for transmitting and receiving electric signals, and an IC regulator, disposed in the cooling air passage around the connector case to face the rear cover, for controlling output

voltage of the armature coil, the IC regulator having a heat sink disposed in the cooling air passage opposite the air intake window of the rear cover.

In contrast, Ooiwa discloses a connector case in a heat sink outside of the C-shape cutout (Fig. 1 of Ooiwa). Only the brush holder 27 is within the accommodation space of the C-shape cutout. Therefore, cooling air that has cooled the heat sink of the IC regulator is not prevented from flowing toward the rectifiers. Furthermore, a cooling air passage is not formed between the brush holder 27 and connector 53, as shown in Fig. 1 of Ooiwa.

Claims 4-8 and 10 are dependent on claim 1 and are, thus, allowable for at least the reasons stated above, as well as the additional features recited therein. For example, in claim 4, the Office Action alleges that Ooiwa shows a heat sink 48 of an IC regulator 47 disposed closer to a rear cover 36 than the cutout section (Figs. 3 and 4 of Ooiwa). Applicant asserts that the relative positions of the heat sink IC regulator and rear cover are not discernable from the figures of Ooiwa. Accordingly, Ooiwa does not disclose or suggest the features recited in claim 4.

The Office Action further alleges that claims 11 and 12 are anticipated by Ooiwa. Applicant asserts that Ooiwa does not disclose or suggest a connector case in the accommodation space formed by the C-shape cutout section of the cooling fins, as recited in claims 11 and 12. Rather, as stated above, in Ooiwa, both the case 53 and the heat sink 48 are disposed outside of such an accommodation space. Accordingly, Applicant submits that Ooiwa does not disclose or suggest claims 1, 4-8 or 10-12. As such, Applicant respectfully request the rejection of claims 1, 4-8 and 10-12 under 35 U.S.C. §102(b) be withdrawn.

The Office Action rejects claim 2 under 35 U.S.C. §103(a) as unpatentable over Ooiwa in view of U.S. Patent No. 4,926,076 to Nimura et al. (Nimura); claim 3 as unpatentable over Ooiwa in view of U.S. Patent No. 5,093,591 to Kitamura et al. (Kitamura);

and claim 9 as unpatentable over Ooiwa in view of U.S. Patent No. 5,686,780 to Adachi et al. (Adachi). The rejections are respectfully traversed.

Regarding claim 2, the Office Action alleges that Ooiwa shows all of the limitations of the claimed invention except for the IC regulator disposed between the connector case and the rear cover. However, as stated above, Ooiwa does not disclose a connector case disposed within the accommodation space. Therefore, although Nimura may disclose a regulator 17 disposed between an electrical connector 171 and a rear cover 19, Nimura does not disclose or suggest such disposed in an accommodation space. Rather, the regulator and electrical connector are disposed outside of the C-shaped portion. Accordingly, Applicant respectfully request the rejection of claim 2 under 35 U.S.C. §103(a) be withdrawn.

Regarding claim 3, the Office Action alleges that Ooiwa shows all of the limitations of the claimed invention except for an IC regulator disposed between the brush holder and the rear cover. However, as Kitamura does not disclose or suggest a connector case disposed in the accommodation space, Kitamura does not overcome the deficiency of Ooiwa. Furthermore, although Kitamura shows an IC regulator 15 and a brush holder 13, the IC regulator is not disposed between the brush holder and the rear cover, but rather the brush holder and the front cover. Accordingly, Applicant asserts that the applied references do not disclose or suggest all of the features recited in claim 3. Applicant respectfully request the rejection of claim 3 under 35 U.S.C. §103(a) be withdrawn.

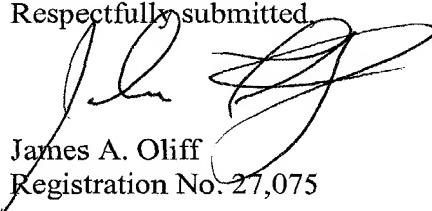
The Office Action alleges that Ooiwa discloses all of the features of claim 9, except for a noise suppressing capacitor disposed in said cutout section. Although, Adachi shows a capacitor 641, it is silent as to the use of the capacitor as a noise suppressor. Furthermore, Adachi does not disclose such a capacitor disposed in the cutout section. Accordingly, Applicant respectfully request the rejection of claim 9 under 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing, reconsideration of the application is respectfully requested.

It is submitted that the claims as presented herein patentably distinguished over the applied references and fully meets the requirements of 35 U.S.C. §112. Accordingly, allowance of claims 1-14 is respectfully solicited.

Should the Examiner believe that anything further is desirable in order to place this application in better condition for allowance, he is requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,


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Attachment:

Appendix
Amendment Transmittal

Date: June 26, 2002

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DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461
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APPENDIX

Changes to Claims:

Claims 13 and 14 are added.

The following is a marked-up version of the amended claim:

1. (Amended) A vehicle AC generator, comprising:
 - a rotor having a field coil;
 - a stator having an armature coil;
 - a frame for supporting said rotor and stator;
 - a rear cover fixed to said frame, said rear cover having an air intake window;
 - a pair of C-shaped positive and negative cooling fins having a common cutout section at a half side the middle thereof thereby forming an accommodation space between said frame and said rear cover, said cooling fins being fixed to said frame to overlap each other in an axial direction;
 - a plurality of positive and negative rectifier elements respectively fixed to said pair of positive and negative cooling fins at the other half side thereof;
 - a pair of brushes for supplying field current to said rotor;
 - a brush-holder, disposed in said accommodation space, for holding said pair of brushes;
 - a connector case disposed in said accommodation space radially outside said brush holder so as to form a cooling air passage connecting said air intake passage to said air intake window between an outer periphery of said brush holder and around said connector case, said connector case having a terminal for transmitting and receiving electric signals; and
 - an IC regulator, disposed in said cooling air passage around said connector case to face said rear cover, for controlling output voltage of said armature coil, said IC

regulator having a heat sink disposed in said cooling air passage opposite said air intake window of said rear cover.

7. (Amended) The AC generator as claimed in claim 1, wherein
said metal-heat sink has a plurality of projections forming parallel air passages
extending in a radial direction along said air passage.

8. (Amended) The AC generator as claimed in claim 1, wherein
said brush holder is fastened to at least one of said connector case, said
cooling fin unitfins and said frame so that said brush holder can be fixed at a present position.

11. (Amended) A vehicle AC generator, comprising:
a rotor having a field coil and a pair of slip rings connected to said field coil;
a stator having an armature coil;
a frame for supporting said rotor and stator;
a rear cover fixed to said frame, said rear cover having an air intake window;
a rectifying unit including a pair of positive and negative cooling fins and a
plurality of positive and negative rectifier elements respectively fixed to said pair of positive
and negative cooling fins, said pair of cooling fins having a common cutout section at the
middle thereof thereby forming an accommodation space between said frame and said rear
cover;

a brush unit including a pair of brushes in contact with said pair of slip rings
and a brush-holder for holding said pair of brushes, said brush holder being disposed in said
accommodation space; and

a connector case disposed in said accommodation space outside-on a side of
said brush holder behind said rectifier elements so as to form a cooling air passage
connecting to said air intake window around-along said connector case, said connector case
having a terminal for transmitting and receiving electric signals; and

an IC regulator, disposed in said cooling air passage around said connector case to face said rear cover, for controlling output voltage of said armature coil, said IC regulator having a heat sink disposed opposite said air intake window of said rear cover.

12. (Amended) A vehicle AC generator, comprising:

a rotor having a field coil and a pair of slip rings connected to said field coil;

a stator having an armature coil;

a frame for supporting said rotor and stator;

a rear cover fixed to said frame, said rear cover having an air intake window;

a rectifying unit including a pair of positive and negative cooling fins and a plurality of positive and negative rectifier elements respectively fixed to said pair of positive and negative cooling fins, said pair of cooling fins having a common cutout section at the middle thereof thereby forming an accommodation space between said frame and said rear cover;

a brush unit including a pair of brushes in contact with said pair of slip rings and a brush-holder for holding said pair of brushes, said brush holder being disposed in said accommodation space;

a connector case disposed in said accommodation space ~~radially outside on a side of said brush holder behind said rectifier elements~~, said connector case having a terminal for transmitting and receiving electric signals; and

an IC regulator having a heat sink for controlling output voltage of said armature coil; wherein

said connector case is disposed in said accommodation space so as to form a cooling air passage connecting to said air intake window around along said connector case;

said IC regulator is disposed in said cooling air passage around said connector case to face said rear cover; and

said heat sink is disposed in said cooling air passage opposite said air intake window of said rear cover.